

## **Frequently Asked Questions In-Use Off-Road Diesel Vehicle Regulation**

### **Two-Engine Vehicles FAQ June 2012**

**Q - What is considered a two-engine vehicle?**

A - As stated in section 2449(c)(57) of the Off-Road regulation, a “two-engine vehicle” means a specially constructed on-road or off-road mobile diesel-powered vehicle that was designed by the original equipment manufacturer to be equipped with two diesel engines: one engine provides the primary source of motive power of the vehicle while the second engine is an auxiliary engine 50 brake horsepower (bhp) or greater that is permanently attached and integrated into the design of the vehicle to perform a specific function, which may include providing auxiliary power to attachments, performing special job functions, or providing additional motive power.

If a vehicle was originally designed with the capability to have an auxiliary engine installed, but the auxiliary engine was installed by someone else other than the original equipment manufacturer, the vehicle still qualifies as a two-engine vehicle under the definition above.

**Q - What are some examples of vehicles defined as two-engine vehicles?**

A - Some examples of two-engine vehicle types include the following:

- Augers (including those whereby the auxiliary engine provides additional motive power)
- Boom Trucks
- Concrete Mixers
- Concrete Pump Trucks
- Cranes: All Terrain, Hydraulic Truck, Conventional Truck
- Drill Rigs: Oil Drilling Rigs, Water-Well Drilling Rigs, Work-Over Rigs
- Guardrail Fence Installers
- Vacuum Pump Trucks

The photographs below show some common examples of on-road and off-road two-engine vehicles with auxiliary engines that are permanently attached and integrated into the design of the vehicle (some diesel-powered auxiliary engines are used to provide motive power).

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Post hole digger: auger with an auxiliary-engine used for auxiliary and motive power



Concrete Boom Truck



Concrete Mixer (with two engines)



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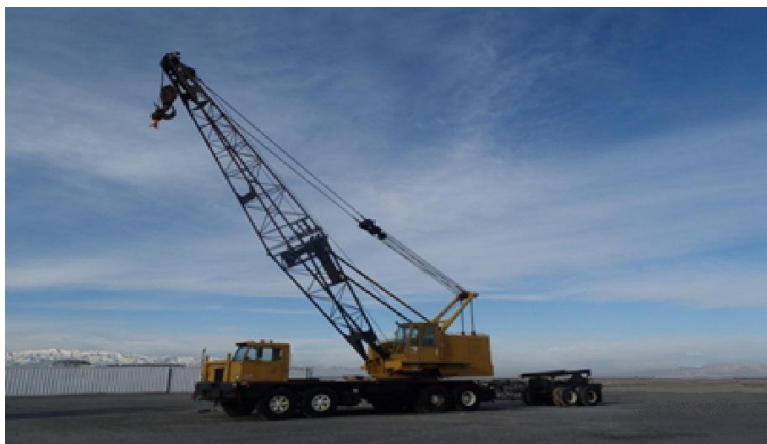
Concrete Pump Truck



All Terrain Crane



Conventional Truck Crane



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Hydraulic Truck Crane



Water-well Drilling Rig



Work-over Drilling Rig



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Guardrail Installer (Drop Hammer)



Vacuum Pump Truck



**Q - Which vehicles do NOT qualify as two-engine vehicles under the Off-Road regulation?**

**A -** On-road trucks with auxiliary engines that are not integrated into the design of the vehicle (such as the service trucks shown below), do NOT qualify as two-engine vehicles, and therefore are NOT subject to the Off-Road regulation.

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Service truck with an air compressor run by 80 hp auxiliary engine



Service truck with auxiliary engine and set up for air hammer, or other equipment



**Q - What industries own two-engine vehicles?**

A - Industries that own two-engine vehicles include but are not limited to the following:

- Aggregate
- Asphalt and Concrete
- Construction
- Drilling and Excavation
- Lifting and Material Handling
- Energy/Gas/Oil

**Q - I have a vehicle that meets the definition of “two-engine vehicle” as provided above. What regulation(s) apply to this vehicle?**

A - The ARB has tried to limit the situations in which the two engines of a two-engine vehicle are subject to different regulations. In most cases, both engines of a two-engine vehicle are subject to the Off-Road regulation. However, there are exceptions to this general rule, and in some cases, the two engines of a two-engine vehicle may be subject to one or more of the following regulations: the In-Use Heavy-Duty Diesel-Fueled Vehicles Regulation (Truck and Bus regulation), the Fleet Rule for Public Agencies and Utilities (PAU regulation) and/or the

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Portable Diesel-Fueled Engines Airborne Toxic Control Measure (Portable ATCM). For example, two-engine sweepers are covered by the Truck and Bus regulation. A two-engine vehicle may be subject to one regulation that controls the emissions of both engines (i.e., the primary/drive engine and the secondary/auxiliary engine), or, it may be controlled by two separate regulations (one for the drive engine and one for the auxiliary engine). However, the number of vehicles now covered by two ARB regulations is expected to be small. Additionally, there may also be requirements by local air districts to permit the auxiliary engine of the two-engine vehicle (see the next question after the table).

There are several factors that determine which regulation will cover a two-engine vehicle, including:

- Vehicle type,
- Who owns the vehicle (public agency vs. private company), and
- The tier level of the auxiliary engine.

The table below summarizes the different types of two-engine vehicles and which Air Resources Board regulations apply to each type.

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Vehicle Type	Vehicle Definition	Vehicle Owner Type (Public or Private Fleet)	Auxiliary Engine Tier Level <sup>1</sup>	Applicable Regulations
<b>Two-engine crane (on-road OR off-road drive engine)</b>	<b>Off-Road regulation, section 2449(c)(56) “Two- engine crane”</b> means a mobile diesel-powered machine with a hoisting mechanism mounted on a specially constructed truck chassis or carrier; one engine provides motive power, and a secondary (auxiliary) engine 50 bhp or greater that is used to lift and move materials and objects.	Public or Private	Any tier	Both engines: Off-Road regulation
<b>Two-engine water-well drilling rig (on-road OR off-road drive engine)</b>	<b>Off-Road regulation, section 2449(c)(58) “Two-engine water-well drilling rig”</b> means a mobile diesel-powered drilling rig owned by a water well drilling contractor with a current, valid C-57 license issued by the Contractors State License Board of California and used exclusively to drill water wells with a drilling mechanism mounted on a specialty constructed truck chassis or carrier; one engine provides motive power, and a secondary (auxiliary) engine 50 bhp or greater that is used to power the drilling mechanism.	Public or Private	Any tier	Both engines: Off-Road regulation
<b>Two-engine street sweeper (with on-road drive engine)</b>  <b>For two-engine street sweepers with off-road drive engines, please refer to “Other two-engine vehicles” below</b>	<b>Truck and Bus regulation, section 2025(d)(58) “Two-Engine Sweeper”</b> means an on-road heavy-duty vehicle with a manufacturers GVWR greater than 14,000 lbs, used for the express purpose of removing material from road or other surfaces, by mechanical means through the action of one or more brooms, or by suction through a vacuum or regenerative air system or any combination of the above. A two-engine street sweeper has an engine to propel the vehicle and an auxiliary engine to power the broom or vacuum.	Privately owned	Any tier	Both engines: Truck and Bus regulation
		Publicly owned	Any tier	Drive engine: PAU regulation Auxiliary engine: Portable ATCM

<sup>1</sup> Off-Road regulation only applies to auxiliary engines 50 bhp and greater, except in cases when the auxiliary engine provides motive power, in which case it applies to auxiliary engines 25 hp and greater.

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Vehicle Type	Vehicle Definition	Vehicle Owner Type (Public or Private Fleet)	Auxiliary Engine Tier Level <sup>1</sup>	Applicable Regulations
<p><b>Two-engine dedicated snow removal vehicle (with on-road drive engine)</b></p> <p><b>For off-road drive engines, please refer to “Other two-engine vehicles” below</b></p>	<p><b>Off-Road regulation section 2449(c)(11) “Dedicated snow removal vehicle”</b> means a vehicle that is operated exclusively to remove snow from public roads, private roads, or other paths from which snow must be cleared to allow on-road vehicle access. Dedicated snow removal vehicles must have permanently affixed snow removal equipment such as a snow blower or auger and may include, but are not limited to, motor graders, loaders, and snow blowers.</p>	Public or private	Any tier	<p>Drive engine: Exempt from ARB regulations</p> <p>Auxiliary engine: Exempt from ARB regulations (<u>unless</u> auxiliary engine is a detachable snow blower, then the Portable ATCM applies)</p>
<p><b>Two-engine authorized emergency vehicle (with on-road drive engine)</b></p> <p><b>For off-road drive engines, please refer to “Other two-engine vehicles” below</b></p>	<p><b>Truck and Bus regulation, section 2025(d)(9) “Authorized Emergency Vehicle”</b> has the same meaning as California Vehicle Code section 165.</p>	Public or private	Any tier	<p>Drive engine: Exempt from ARB regulations</p> <p>Auxiliary engine: Portable ATCM</p>
<p><b>Other two-engine vehicles (on-road OR off-road drive engines)</b></p> <p><b>Does NOT include two-engine on-road trucks less than 14,000 GVWR</b></p>	<p><b>Off-Road regulation section 2449(c)(57) “Two-engine vehicle”</b> means a specially constructed on-road or off-road mobile diesel-powered vehicle that was designed by the original equipment manufacturer to be equipped with two diesel engines: one engine provides the primary source of motive power of the vehicle while the second engine is an auxiliary engine 50 bhp or greater that is permanently attached and integrated into the</p>	Publicly owned (with on-road drive engine)	Any tier	<p>Drive engine: PAU regulation</p> <p>Auxiliary engine (does not provide motive power): Portable ATCM</p> <p>Auxiliary engine (provides motive power): Off-Road regulation</p>

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Vehicle Type	Vehicle Definition	Vehicle Owner Type (Public or Private Fleet)	Auxiliary Engine Tier Level <sup>1</sup>	Applicable Regulations
	design of the vehicle to perform a specific function, which may include providing auxiliary power to attachments, performing special job functions, or providing additional motive power.	Publically owned (with off-road drive engine)  Privately owned (with on- or off-road drive engine)	Tier 0	On-road drive engine: Truck and Bus regulation  Off-road drive engine: Off-Road regulation  Auxiliary engine (does not provide motive power):: Portable ATCM  Auxiliary engine (provides motive power): Off-Road regulation
			Tier 1 or above	Both engines: Off-Road regulation

**Q – Do I still need a local air district permit or PERP registration for my auxiliary (upper) engine?**

A – In addition to meeting the requirements of ARB regulations, most local air districts may require a permit for the operation of the auxiliary engine unless the engine is registered in ARB's Portable Equipment Registration Program (PERP). Therefore, you should contact the local district you plan to operate in to see if a permit is required (<http://www.arb.ca.gov/capcoa/roster.htm>). If you choose to register in PERP, you are required to remit applicable registration fees and display the PERP identification device (sticker and green placard) in addition to any vehicle identification labels that may be required under other ARB regulations. If registered under PERP, the owner/operator must also comply with the PERP inspection requirements. However, for auxiliary engines on two-engine vehicles subject to the Off-Road regulation, no additional recordkeeping or reporting is required beyond what is required under the reporting requirements of the Off-Road regulation. For more information about PERP, please see the PERP website at: [www.arb.ca.gov/portable/portable.htm](http://www.arb.ca.gov/portable/portable.htm)

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**Q - If both engines of my two-engine vehicle are now subject to a regulation other than the Portable ATCM (i.e., the Off-Road regulation or in the case of two-engine on-road sweepers, the Truck and Bus regulation) will I still need to meet the performance requirements of the Portable ATCM?**

A - No. Formerly, the auxiliary engine of two-engine vehicles fell under the Portable ATCM. However, the auxiliary engines of two-engine vehicles that are now subject to the Off-Road and the Truck and Bus regulations have been exempted from the requirements of the Portable ATCM. Currently, both engines are required to comply respectively with the reporting, labeling, and performance requirements of the Off-Road and Truck and Bus regulations.

**Q – Why are two-engine cranes and two-engine water-well drilling rigs treated differently from other two-engine vehicles?**

A - Two-engine cranes and two-engine water-well drilling rigs were brought into the Off-Road regulation before the Tier 0 portable engine ban came into effect under the Portable ATCM. However, when the more recent modifications to the Off-Road regulation were made (which brought additional two-engine vehicles into the Off-road regulation), the Tier 0 engine portable engine ban was already in effect. To allow these additional two-engine vehicles with Tier 0 auxiliary engines to continue operating by making them subject to the Off-Road regulation would result in emissions disbenefits, and would also reward those fleet owners who did not comply with the Portable ATCM (i.e., the Tier 0 portable engine ban). Therefore, when the Off-Road regulation was amended in December 2010 to include a majority of two-engine vehicles, this provision specifically excluded two-engine vehicles with Tier 0 auxiliary engines.

**Q - I have a two-engine vehicle (that is not a crane or water-well drilling rig) that has a Tier 0 auxiliary engine. What regulations apply to that vehicle? Can that vehicle eventually be subject to the Off-Road regulation?**

A - Since the auxiliary engine is a Tier 0, both engines will not be subject to the Off-Road regulation. Instead, you must look at the drive engine and auxiliary engine separately. The drive engine would be subject to the Truck & Bus, Off-Road, or Public Agencies & Utilities regulations, depending upon if the drive engine is an on-road engine, off-road engine, or an on-road engine owned by a local municipality. The auxiliary engine would be subject to the Portable ATCM, and local air district permitting requirements.

If the auxiliary engine is eventually repowered to a tier level that meets the Off-Road regulation's adding vehicles requirements, then both engines of the two-engine vehicle will then be subject to the Off-Road regulation.

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**Q - The auxiliary engine of my two-engine vehicle also provides motive power to the vehicle. What regulation(s) applies to this vehicle?**

A - If the auxiliary engine is 25 hp or greater and provides motive power to the two-engine vehicle, that auxiliary engine is subject to the Off-road regulation and it is not subject to Portable ATCM.

For the drive engine, the applicability will depend on a few factors including the tier level of the auxiliary engine and if the vehicle is privately or publicly owned (please refer to the table above to determine applicability). However, in general, if the drive engine is an off-road engine, it most likely will fall under the Off-Road regulation.

**Q - I have a two-engine vehicle that has an auxiliary engine less than 50 bhp. What regulation(s) applies to this vehicle?**

A - A two-engine vehicle with an auxiliary engine less than 50 bhp does not meet the definition of two-engine vehicle in the Off-Road regulation. Therefore, the applicability chart provided in this document does not apply to these vehicles and instead a fleet must look at the drive engine and auxiliary engine separately to determine which regulation applies.

If the drive engine is an off-road engine, the Off-Road regulation will most likely apply; the Truck and Bus and PAU regulations will most likely apply for an on-road drive engine.

If the auxiliary engine is 25 hp or greater and provides motive power to the two-engine vehicle, that auxiliary engine is subject to the Off-road regulation and it is not subject to Portable ATCM. If the auxiliary engine is less than 50 bhp and does not provide motive power to the two-engine vehicle, then the Portable ATCM, PERP, and most district permitting programs do not apply.

**Q - I have a two-engine vehicle that is an on-road vehicle with a gross vehicle weight rating (GVWR) of less than 14,000 lbs. What regulation(s) applies to this vehicle?**

A - The two-engine vehicle provisions of the Off-Road regulation do not apply to on-road vehicles that have a GVWR less than 14,000 lbs. Similarly, the Truck and Bus and PAU regulations only apply to vehicles with a GVWR greater than 14,000 lbs. Therefore, the drive engine would not be subject to either of the above regulations, however, the portable engine would be subject to the Portable ATCM and district permitting programs if it is 50 bhp or greater.

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**Q - I have a two-engine dedicated snow removal vehicle. What regulation(s) applies to this vehicle?**

A - If the vehicle has two-engines (with an on-road drive engine) and meets the definition of “dedicated snow removal vehicle” (as listed in the table above), the drive engine of the vehicle is exempt from the Off-Road, Truck and Bus, and PAU regulations. If the drive engine is an off-road engine, then it is subject to the reporting and labeling requirements of the Off-Road regulation. The auxiliary engine of the two-engine dedicated snow removal vehicle is exempt from the Portable ATCM, unless the auxiliary engine is a detachable snow blower. If the snow blower is detachable (and is 50 bhp or greater), the auxiliary engine must comply with the Portable ATCM (the on-road drive engine would still be exempt).

**Q - I have a two-engine vehicle that is an authorized emergency vehicle (as described in California Vehicle Code (Veh. Code) section 165). What regulation(s) applies to this vehicle?**

A - If the two-engine vehicle meets the definition of an authorized emergency vehicle (as described in California Veh. Code section 165), then the on-road drive engine of that vehicle is exempt from the Off-Road, Truck and Bus, and PAU regulations. If the drive engine is an off-road engine, then it is subject to the reporting and labeling requirements of the Off-Road regulation. If the auxiliary engine is 50 bhp or greater, it must comply with the Portable ATCM.

**Q - How do I report two-engine vehicles under the Off-Road regulation?**

A – Fleets with two-engine vehicles covered under the Off-Road regulation must report both engines, but the vehicle will be assigned only one Equipment Identification Number (EIN). For more information on how to report two-engine vehicles, please see our DOORS User Guide on ‘How to Report Vehicles with Two (or More) Engines,’ which is available in the off-road Knowledge Center at: <http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm>

**Q – Can a two-engine vehicle covered under the Off-Road regulation be considered a low use vehicle if only one engine is low use? For example, what if the auxiliary engine is used less than 200 hours per year, but the drive engine is used more often?**

A – No. In order to be considered a low use vehicle, both engines of a two-engine vehicle must meet the low-use criteria provisions, that is, both engines must operate less than 200 hours annually. For more information on the low-use provisions of the off-road regulation, please see the Low-Use FAQ which is available in the off-road Knowledge Center at: [www.arb.ca.gov/msprog/ordiesel/knowcenter.htm](http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm)

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**Q – The drive engine of my on-road two-engine vehicle is an off-road engine. If I want to repower that engine, can I repower it with another off-road engine?**

A – If an on-road registered vehicle with an off-road engine is repowered, and will be registered and driven on-road, it must be repowered with an on-road certified engine of the same model year or newer as the engine being replaced. Therefore, the drive engine of an on-road two-engine vehicle can be repowered with an off-road engine only if it will not be registered or driven on-road. For more information about on-road vehicles with off-road engines, please see the advisory available at: [www.arb.ca.gov/enf/advs/advs381.pdf](http://www.arb.ca.gov/enf/advs/advs381.pdf).

**Q – I have a two-engine vehicle, and want to retrofit the auxiliary engine only. Does this make the entire vehicle eligible for the BACT exemption if the installation is done before January 1, 2013? Does it make the vehicle eligible for a six-year delay before turnover is required?**

A – Section 2449.1(b)(2)(E) of the regulation allows large and medium fleets to claim an exemption from future BACT requirements for a vehicle if the vehicle is equipped with the highest level PM VDECS available at the time of installation (all subsequent references to “highest level PM VDECS available” means at the time of installation) prior to January 1, 2013. This exemption is capped at 15 percent of the horsepower in the fleet as of December 31, 2012. For vehicles in large and medium fleets that do not qualify for the above exemption, the regulation also provides that vehicles in large and medium fleets are exempt from the regulation’s BACT requirements for six years from the date that they have been retrofitted with the highest PM VDECS available. Vehicles in small fleets that have been retrofitted with the highest level PM VDECS available are permanently exempt from the BACT requirements. (See sections 2449.1(b)(2)(C) and (3)(C), respectively).

With regard to two-engine vehicles, if VDECS exist for both the drive and auxiliary engines, then BOTH engines must be retrofitted with the highest level PM VDECS available for the two-engine vehicle to be eligible for the various BACT exemptions. To be eligible for the exemption available to large and medium fleets that have installed the highest level VDECS prior to January 1, 2013, both engines of the two-engine vehicle must be retrofitted if VDECS are available. A vehicle would, however, still qualify for the exemption if no highest level VDECS were available for one of the vehicle’s engines but the other engine has been retrofitted prior to January 1, 2013. In this case, the horsepower from both engines must be counted towards the 15 percent exemption cap. If a fleet has already exceeded its 15 percent cap, the six year BACT exemption for the entire vehicle would still be available (see section 2449.1(b)(2)(C)).

If both engines have VDECS available, and the highest level VDECS is only installed on one of the engines, the entire vehicle will not be exempt from future BACT requirements; however, the engine with the highest level VDECS installed

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will still qualify for the six year BACT exemption (from the date of VDECS installation) as stated in section 2449.1(b)(2)(C).

For small fleets, a two-engine vehicle may be permanently exempt from the BACT requirements (see section 2449.1(b)(3)(E)), only if both engines have the highest level VDECS available installed. Similar to the provisions above for medium/large fleets, if only one engine of the two-engine vehicle has a highest level VDECS installed, the entire vehicle may still receive the BACT exemption as long as there is no VDECS available for the non-retrofitted engine. If both engines have VDECS available, and the highest level VDECS is only installed on one of the engines, the entire vehicle is not be exempt from future BACT requirements; however, the engine with the highest level VDECS installed still qualifies for the permanent BACT exemption (see section 2449.1(b)(3)(E)).

**Q - How does the 'Rounding' provision in section 2449.1(b)(5) affect two-engine vehicles?**

A - For purposes of the rounding provisions in section 2449.1(b)(5), if a two-engine vehicle is subject to the Off-Road regulation, neither engine in the two-engine vehicle is required to be turned over until the horsepower required to be turned over under the BACT requirements is at least half the sum of the combined horsepower of the primary and auxiliary engines in the two-engine vehicle.

**Q – If my fleet was previously less than 20,000 horsepower (hp) statewide, and now, after adding the horsepower of my two-engine vehicles, the fleet hp exceeds 20,000 hp, is the fleet subject to the SOON program if all other applicable criteria are met?**

A – No. Since this was a change that was made after the development of the SOON program (described in section 2449.2), you do not need to add in the hp from two-engine vehicles when determining SOON fleet applicability.

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